

GROWTH PATTERNS AND ECONOMIC PERFORMANCE OF FRENCH MANUFACTURING FIRMS

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Since early 1994, there have been signs of an upturn in economic activity ². The strength and scope of the recovery depend to a large extent on the ability of companies to exploit their competitiveness, which is dependent on the decisions they take today, particularly where both tangible and intangible investments ³ are concerned.

In 1993 in “*Les P.M.E. : technologie et compétitivité*” l' O.E.C.D. notes that “*l' analyse micro-économique met en relation les éléments de compétitivité d'une entreprise avec l'ensemble de ses fonctions et des décisions qui touchent à son activité, sa croissance (que traduisent son chiffre d'affaires, sa valeur ajoutée, son excédent brut d'exploitation, ses effectifs, etc.), sa rentabilité, son financement, son équilibre financier, sa gestion*” . The authors say that “*à l'évidence, il n'existe pas, à l'heure actuelle, de modèle théorique mettant en relation ces variables et pouvant fournir une explication de la compétitivité des P.M.E.*” .

The aim of this article is to identify specific types of economic behaviour and to relate them to companies' investment, and particularly intangible investment, decisions. It is first of all necessary to define competitiveness and to suggest a measurement indicator suited to aggregated accounting data. The link between competitiveness and profitability will be specified and the diversity of the companies will then be highlighted.

1. Measurement of Corporate Performance.

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² See among others, the Business Conditions Surveys of the Banque de France and the Lettre de Conjoncture of the BNP, July and August 1994.

³ See “Compétitivité et rentabilité des entreprises industrielles”, by B. Paranque, Entreprises collection, Banque de France, 1995.

Assessing a company's economic situation involves looking at how the management uses resources and **measuring the results obtained** with reference to the objectives set (Jacot J. H., 1990).

Three stages in the assessment have then to be identified, *"namely, the recognition of levels that are too often confused in economic assessments: the "physical" level, the "market" level, and the "financial" level"* (Jacot J. H., 1990, page 65).

The "physical" level corresponds to the productivity (or yield) of labour and capital. It is the level of the concrete implementation of the combination of factors of production. It covers both the technological and organizational dimensions of the production process, along with human resources management. As a result, the productivity stemming from this "physical" level depends as much on quantitative factors (staff numbers, capital, etc.) as on qualitative factors (training, working conditions, etc.). One can say that this productivity is one factor in a company's competitiveness, since it is the outcome of the production process from the point of view of factors of production.

Competitiveness in the strict sense of the term corresponds to the "market" level. In addition to the productivity of labour and capital, it depends on the "excellence of production", i.e. quality, reliability, fluidity (zero stocks), flexibility, safety, etc. **Using accounting data, and in the absence of information on the company's environment**, the pertinent indicator of the market outcome is the profit margin. This is because the profit margin is the result of cost control, via the company's pricing policy and the quality of customer service, and of the organization of production and of human resources.

The third, "financial", level, brings return on assets ⁴ into play. It is thus possible to dissociate competition issues (competitiveness) from profitability. This is because the formation of profit can differ greatly according to the firm, not only in terms of its market, but also through the specific choices in relation to labour and/or capital productivity and price and non-price competitiveness. This therefore influences the investment decisions that shape the company's combination of factors of production and the corresponding financial structure.

⁴ It is also possible to use return on equity.

This *a posteriori* accounting assessment of the underlying economic dynamics is only valid if it concerns all the players in the firm in terms of the conditions that need to be met or reproduced to continue, strengthen, and improve competitiveness and, in a wider sense, the current and future efficiency of the company.

2. The Importance of a Good Assessment of Profitability

Analyzing a firm's ability to generate funds involves studying the type of environment in which it operates and the organizational methods it uses to manage its environment. By referring to the typology established by R. Salais and M. Storper (1993), one can study the range of choices made by the company that determine the formation of profitability.

"Maximizing the return on capital does not in itself define a hierarchy of choices between the production models. All the production models are in fact profitable if they are implemented coherently" (Salais R., Storper M., p. 74; Paraque B., 1992, 1994a, 1994b).

The different "production models" can be studied on the basis of return on assets, which is expressed as:

$$\text{GRI} = \frac{\text{Overall gross cash flow}}{\text{Capital employed}}, \text{ Gross return on investment} \quad ^5.$$

Several variations of the ratio "reflecting" the choices made by the firm are possible, according to the market and production process dimensions:

"The first formula puts the accent on the market, in other words on the choice of product and organization compatible with a market-driven optimization of return on assets".

$$\text{GRI} = \frac{\text{OGCF}}{T} \times \frac{\frac{T}{\text{Production equipment}}}{\frac{\text{Capital invested}}{\text{Production equipment}} + \frac{\text{WCR}}{T} \times \frac{T}{\text{Production equipment}}} \quad (1)$$

⁵ According to the financial analysis method used by the Banque de France Balance Sheet Data Centre: gross operating cash flow + non operating financial income and net expenses; capital employed, either own self-financing + financial debt, or fixed assets + working capital requirement + cash and cash equivalents + leasing.

T = turnover

OGCF = overall gross cash flow

WCR = Working capital requirement

Capital invested = capital employed minus the working capital requirement (gross fixed assets)

In this case, the vectors are the overall gross profit margin, the rate of turnover of production equipment (adaptability/sensitivity of the company to short-term demand) and the frequency of operating working capital requirement turnover. *"This market-driven optimization gives priority to the flow, i.e. to short-term organization".*

"The second two formulae stress the organization of production, in other words the technology-driven optimization of profitability. This optimization based on technology gives priority to capital invested in equipment and labour, i.e. to medium-term organization".

The first of the formulae is expressed as:

$$GRI = \frac{(1 - \frac{PC}{VA}) \times \frac{VA}{N}}{\frac{K}{N} + \frac{WCR}{N}} \quad (2a),$$

VA = value added

PC = personnel costs (wages plus social security costs)

N = number of employees

K = capital invested (capital employed minus working capital requirement)

"The underlying technological direction here is increasing labour productivity, VA/N, based on the substitution of capital for labour, K/N, and on the relative savings on personnel costs, PC/VA; PC/VA diminishes if labour productivity rises faster than personnel costs per employee".

The second formula is expressed as:

$$GRI = \frac{(1 - \frac{PC}{VA}) \times \frac{VA}{K}}{1 + \frac{WCR}{K}} \quad (2b).$$

"The underlying technological direction is improving capital efficiency, VA/K. It corresponds to combinations of factors of production based on specific qualities of

labour or intangible investment intended primarily to develop the capacities of the work force" ⁶.

This approach thus makes it possible to define a yardstick for assessing how well profitability is managed, i.e. how the "dynamic equilibrium" is controlled.

3. Different Types of Behaviour in the 1993 Recession

In 1993, the constraint of financing fixed asset formation made a clear distinction possible between firms. First of all, firms differ in their investment policy and how it is financed, taking into account their activities and their own ability to improve their competitiveness in times of recession.

Companies can also be distinguished according to their combination of factors of production and its efficiency. It emerges that small- and medium-sized manufacturing firms with fewer than 100 employees can be contrasted with large companies with fewer than 2,000 employees.

On the basis of this initial approach, six classes of behaviour can be identified ⁷:

The first so-called "autonomous" class of behaviour includes mainly small- and medium-sized manufacturing firms with fewer than 100 employees and intermediate goods manufacturers. They are slightly more competitive than average but suffer from a deficit on the "physical" level, which could jeopardize their future (Coriat, Taddei, 1992; Ochs, 1995).

The second class of behaviour, called "exporter" behaviour, covers companies that belong mainly to the business equipment sector. They are firms that employ between 100 and 2,000 people. Their competitiveness is based on high labour productivity despite the fact that their capital efficiency is the lowest in the typology and adversely affects their return on assets. Their ratio of intangible investment is high, even during the two previous years, and must thus have contributed to their performance.

The third class includes, in particular, companies with between 500 and 2,000 employees in the business equipment and consumer goods sectors. This class of behaviour is called "profitable" because it is characterized by what may be termed a

⁶ Here, work force is used in the wide meaning of the term to refer to all employees, and those involved in or responsible for investment efficiency.

⁷ Factor analysis was used to classify types of behaviour in ascending order.

"virtuous" pattern: high labour productivity and average capital efficiency go hand in hand with a high profit margin. Beginning in 1991, this pattern was based on a very high and sustained rate of intangible investment.

TYPOLOGY OF COMPANIES IN 1993

Average of ratios	Class 1 Auto- nomou s	Class 2 Expor- ting	Class 3 Profita ble	Class 4 Investo r	Class 5 Non- capital intensiv e	Class 6 Ailing	All
Share of the class in the sample (%)	44.9	13.3	10.1	9.3	9.5	12.9	100.0
Active ratios							
Debt servicing costs (%)	77.9	77.1	53.6	96.9	66.5	526.6	133.8
Overall VA/Capital employed (%)	57.4	48.0	NS	55.7	130.5	54.9	63.0
Fixed asset formation rate (%)	1.0	7.0	12.1	18.5	22.8	- 20.3	3.8
Change in VA (%)	NS*	0.0	NS	12.5	2.3	- 25.4	- 3.2
Change in employee numbers (%)	- 3.8	NS	1.6	8.2	- 1.1	- 11.6	- 3.2
Change in capital (%)	1.3	4.6	NS	27.3	5.1	- 10.7	3.1
WCR turnover (days)	86.0	102.5	NS	71.1	28.3	96.6	81.8
Export rate (%)	7.5	55.4	NS	11.7	8.2	NS	16.4
Investment rate (%)	7.4	NS	6.8	32.2	4.8	7.6	9.8
Shareholders' rate of return (%)	1.6	1.9	9.2	1.9	NS	1.2	2.5
Lenders' rate of return (%)	12.5	12.5	13.6	10.0	NS	NS	15.3
External financing rate (%)	46.8	38.1	33.9	77.7	25.2	96.5	51.6
Production employees/total employees (%)	8.0	NS	49.2	80.7	81.9	73.8	76.1
Labour costs (FRF 000s/p)	181.2	210.4	278.2	190.2	179.6	NS	197.8
Illustrative ratios							
Return on equity (%)	2.5	3.6	8.6	3.1	6.1	- 24,4	0,2
GRI (%)	12,3	NS	17,5	15,2	18,0	- 4,4	11,5
OGCF/Overall VA (%)	23.3	26.5	30.6	29.4	17.6	- 7.8	20.5
Total investment rate (%)	9.2	NS	10.4	38.4	5.8	NS	12.5
Capital employed / personnel costs (%)	NS	357.7	317.6	336.9	140.3	246.7	280.8

VA/employee numbers (FRF 000s/p)	244.0	301.0	436.1	289.6	227.7	187.0	266.4
Rate of turnover of production equipment (%)	298.6	311.6	644.3	296.5	647.4	NS	376.5
Equity/total assets (%)	37.7	42.4	42.6	32.1	NS	16.9	35.4
Average cost of external financing (%)	11.6	10.7	11.0	9.0	19.6	NS	11.9
Ordinary bank financing/external financing (%)	NS	24.7	23.0	23.1	16.0	37.4	26.9
Rate of intangible investment	1.7	3.6	5.2	NS	1.3	1.7	2.6
Proportion (%)							
Intermediate goods	42.5	NS	23.4	44.4	25.2	NS	37.1
Consumer goods	NS	27.2	42.6	NS	44.4	30.0	35.7
Business equipment	17.0	33.6	31.3	16.1	27.6	29.0	23.1
Household goods	NS	NS	NS	NS	NS	NS	0.6
Automotive sector	NS	NS	1.7	NS	NS	NS	3.4
Small manufacturing firms	68.8	41.8	54.1	70.4	79.0	NS	64.4
Medium manufacturing firms	NS	39.1	NS	NS	18.4	NS	28.2
Large companies	3.4	15.7	12.9	3.0	1.9	NS	6.2
Very large companies	NS	NS	NS	NS	NS	NS	1.2
Source and production: Banque de France - Companies Observatory							
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* NS: non significant relative to the average or the frequency with which they appear in the sample.

The fourth, **so-called "investing"**, class consists mainly of small- and medium-sized manufacturing companies and of firms in the intermediate goods sector. These companies are **more competitive than average but suffer from a deficit in capital**

efficiency which is probably due to the time lag in return on investment. The rate of intangible investment is average ⁸.

Class 5 includes small- and medium-sized manufacturing companies and firms in the consumer goods and business equipment sectors. These companies are **"non-capital-intensive", and are uncompetitive but make up for this handicap by a high degree of capital efficiency which gives them a clear advantage on the "financial" level.** They have the lowest rate of intangible investment but this must be assessed in the light of the specific features of these companies and of the limits of the indicator, which does not take into account "incorporated" intangibles such as know-how acquired "on the job".

"Ailing" companies are included in class 6. This class has no specific features in terms of size. Only firms in the business equipment sector are slightly more numerous. **These are companies whose debt servicing costs are five times greater than that of the rest of the sample.** Their intangible investment rate is slightly above average.

The wide range of situations that emerges may be explained by different degrees of sensitivity to the recession and the fall in activity. This would be a rather simplistic view if one did not take into account the specific characteristics of each company in terms of technology, marketing policy, strategy and work organization.

4. Various Types of Environment

The wide range of economic structures reflects the wide variety of market positions and production processes.

The typology set out above shows that companies encounter four main situation types:

- the first is characterized by a high level of debt servicing costs (class 6) and highlights the solvency constraint linked, in particular, to the decline in activity;
- the second concerns the profitability constraint linked to the investment policies that have been implemented (classes 4 and 5, and to a lesser extent, class 3);

⁸ It is probably undervalued given the accounting methods since a large part of the accompanying expenses and the costs of implementing tangible investments are not isolated and are therefore considered as intangible investments.

- the third stresses the specific features of a growth pattern based on increasing labour productivity (class 3), which may be achieved at the expense of capital efficiency (class 2);

- the fourth type of situation, encountered by class 1, is a synthesis of the three preceding situations and, while low investment levels help preserve financial autonomy and a certain degree of profitability, this may be at the expense of future competitiveness.

In other words, the constraints appear to be specific to the firms in each of these classes and the sensitivity of their profitability to their economic and financial situations seems therefore to vary. This takes us back to the idea developed by R. Salais and M. Storper concerning the existence of "worlds" characterized by particular constraints, whose main features are as follows:

- the "interpersonal world" (MARSH) is that of specialized and dedicated products, which renders companies extremely sensitive to changes in demand due to the high level of uncertainty. Profitability will therefore be highly dependent on the profit margin and on control of the combination of factors of production (labour and productivity costs and capital efficiency). Competition is on quality and therefore depends on investment policy. It is a world of uncertainty and differentiation;

- the "market world" (MARCH) is that of standard and dedicated products in which competitiveness is based first on price and then on quality. Standardization leads to higher than average capital intensiveness as well as higher labour productivity; it is a world of uncertainty and of economies of scale;

- the "industrial world" (IND) is that of mass production. Here too, standardization leads to increased capital intensiveness and high labour productivity but profitability will depend less on the profit margin than on control of the operating cycle (turnover of working capital requirement and equipment turnover); it is a world of predictability and of economies of scale;

- the "intangible world" (INNOV) is that of innovation. Like the "interpersonal" world, it is therefore characterized by high labour costs corresponding to the high level of skills required and a high degree of capital efficiency which, as in the "industrial" world, is due to a constraint linked to the risk of slower working capital requirement turnover (development of new products) and the need for a high rate of equipment turnover. It is a world where uncertainty becomes certainty: "the company

has no choice but to act as though it were producing for an existing and known market".

It is interesting to try to establish links between the typology set forth previously with the "worlds" thus defined.

5. Specific Growth Patterns

The purpose is to **analyze**, other things being equal, a **possible configuration**, reasoning along the lines of "if the company fulfils these conditions, then we can assume that it belongs to this world", with the proviso that several "worlds" can coexist within one company.

Clearly, this is not a demonstration but a series of questions concerning the diversity of situations encountered by companies and the diversity of solutions they find to achieve profitability.

Using the Salais and Storper criteria, one can then assess the importance of the six classes in each "world" independently of the others.

"Autonomous" companies (class 1) and "ailing" companies (class 6) are not linked to any particular "world". Thus, there is no determinism in the difficulties of "ailing" companies or in financial autonomy. A common point emerges between these two classes, namely a deficit on the "physical" level. This may result from either a fall in activity or a more or less serious loss of control over the implementation of the combination of factors of production, which is generally a prelude to the company's coherence coming under threat.

"Profitable" companies (class 3) and "exporting" companies (class 2) resemble each other in their underlying technology policy, which is based on increasing labour productivity as a factor of their competitiveness. These companies in general, and particularly "profitable" companies, trade on economies of scale (MARCH or IND). "Profitable" companies may nevertheless trade on differentiation (MARSH and INNOV), where their competitiveness results partly from a higher degree of capital efficiency than "exporting" companies, and therefore from a different technology policy.

"Investing" companies (class 4) are more frequently positioned on an uncertain market selling standard products - economies of scale - (MARCH) or dedicated products - differentiation - (MARSH). We saw that they are, on average, more

competitive than other companies, but that they could suffer from a deficit in capital efficiency, probably linked to the lag in return on investments, particularly in the case of companies belonging to the "market" world (MARCH).

For the last three classes mentioned, the underlying technology policy tends to be increasing labour productivity by substituting capital for labour. "Non-capital-intensive" companies (class 5) mainly belong to the "world" of differentiation (MARSH and INNOV), with a technology policy based on capital efficiency. This allows them to compensate for their lack of competitiveness. They are sometimes found in the "industrial" world.

This breakdown of typologies makes it possible to identify constraints corresponding to the company's concrete situation, and therefore to a possible range of management approaches, depending on its size, product range, geographical market, technologies used, etc.

This approach shows just how illusory it is to generalize and forget that, even though the company forms a homogenous whole, it can only do so if it manages to make the lines of reasoning found within it coexist coherently. If the lines of reasoning are in conflict, the company faces a crisis, if they are not, the company is competitive.

Conclusion

In the recession, the extent of the decline in investment and profitability and the strengthening of financial autonomy varied according to the company.

Most companies, i.e. "autonomous" companies, were able to preserve their profitability and reduce their debts by cutting back investment. The choices made in response to short-term pressures may jeopardize past gains in competitiveness. One may therefore wonder, as does P. Artus, whether such a policy is effective, *"Reducing investment does limit shortterm debt in a period of recession, but if this shortfall in fixed assets is thought to be (at least partially) irreversible, the decision leads to an insufficient, sub-optimal capital stock that may reduce profits in the long term"* (Artus P., 1994).

In contrast, "profitable" companies, and above all "investing" companies and 'non-capital-intensive' companies, trimmed their investment in fixed assets to a lesser extent. This may increase their financial constraints but enhances their competitiveness, providing the recovery comes early enough to allow them to make the expected gains.

In simple terms, both these scenarios show a dividing line defined by fixed asset formation and the market constraint. On one side, there are companies faced with a tighter market constraint but which can nevertheless loosen their financial constraint by reducing investment even if this means accepting lower profitability. On the other side of the line, there are companies that benefit from an increase in activity. This enables them to reduce their profitability constraint, but the counterpart to their accumulation of fixed assets is a loss of financial autonomy.

The range of firms' economic and financial situations thus reflects specific economic approaches and not simply different types of behaviour in response to a similar environment. The company that produces standard products and seeks economies of scale does not have the same constraints as a firm whose activity is based on innovation and meeting specific needs. The ways these constraints are managed are different too. The management approaches are based, depending on the case, on greater labour intensiveness, or else, on improved overall efficiency in the use of capital, and particularly of human capital.

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